
Education

- 2010–2016 **Ph.D.**, *The University of Chicago*, Chicago, IL, USA, *The Department of the Geophysical Sciences*, Advisor: Andrew M. Davis
Thesis: “Deciphering Galactic Chemical Evolution: Iron and Nickel Isotopes and Cosmic Ray Exposure Ages of Presolar Silicon Carbide Grains”
- 2008–2010 **M.S.**, *University of Bern*, Bern, Switzerland, *Physics*, Advisor: Ingo Leya
Insigni cum laude, thesis: “Cosmogenic nuclides in micrometeorites – Solar cosmic-ray production rates and recoil loss effects”
- 2005–2008 **B.S.**, *University of Bern*, Bern, Switzerland, *Physics with Astronomy*
Magna cum laude, thesis: “Studies of noble gas components and the weathering of two ureilites – Kenna and Ramlat as Sahmah 247”

Research Experience

- 2022-present **Scientist**, *École Polytechnique Fédérale de Lausanne, Switzerland*, School of Architecture, Civil and Environmental Engineering (ENAC), Environmental Engineering Institute (IIE), Laboratory for Biological Geochemistry
My research focuses on studying stellar nucleosynthesis, the nuclear physics of its astrophysical sites, and galactic chemical evolution with isotopic analyses of stardust grains. To this end, I develop new instruments and measurement techniques in order to determine the isotopic composition of ultra-trace elements in such micrometer-sized samples.
- 2020-2022 **Assistant Research Professor**, *Brandeis University, Waltham, MA, USA*, Department of Physics
My research focused on combining isotopic measurements of stardust grains, astronomical observations, and models for stellar nucleosynthesis and galactic chemical evolution to further our understanding of element formation in the Milky Way. To this end we develop new techniques and measurements methods for resonance ionization mass spectrometry to analyze these micrometer-sized samples.
- 2017-2020 **Postdoctoral Researcher (2017-2019), Staff Scientist (2019-2020)**, *Lawrence Livermore National Laboratory, Livermore, CA, USA*, Nuclear and Chemical Sciences Division, Isotope signatures group, Supervisors: Michael R. Savina and Brett H. Isselhardt
My research focused on applying resonance ionization mass spectrometry (RIMS) to determine the initial abundance of ^{60}Fe in the solar nebula and on developing techniques to measure ultra-trace levels of ^{244}Pu in atom-limited samples. Additionally, I improved and maintained the Laser Ionization of Neutrals (LION) RIMS instrument by developing hard- and software.

- 2010-2016 **Graduate Student (2010-2016)**, *The University of Chicago, Chicago, IL, USA*, Department of the Geophysical Sciences, Supervisor: Andrew M. Davis
My research focused on analyzing the iron and nickel isotopic composition of SiC stardust grains to study galactic chemical evolution. In order to perform these measurements I co-developed and built the Chicago Instrument for Laser Ionization (CHILI).
- 2009-2010 **Master Student**, *University of Bern, Bern, Switzerland*, Physics Institute, Supervisor: Ingo Leya
My research focused on modeling the cosmogenic nuclide production of short-lived radionuclides and noble gases induced by solar cosmic rays in micrometeorites and interplanetary dust particles. Using my physical model I determined the residence times of such particles in space.
- 2008-2009 **Undergraduate Researcher**, *University of Bern, Bern, Switzerland*, Physics Institute, Supervisor: Ingo Leya
My research focused on noble gas measurements in ureilites; stony, undifferentiated meteorites with a puzzling origin. Using noble gas analysis I studied the degree of weathering these samples experienced in the hot deserts they were found in.

Honors

- 2020 **Directorate Award**, *Physical and Life Sciences*, Lawrence Livermore National Laboratory
"For showing that stardust grains could be as much as three times as old as previous studies have suggested – *Proceedings of the national Academy of Sciences (2020)*"
- 2019 **Directorate Award**, *Physical and Life Sciences*, Lawrence Livermore National Laboratory, Outstanding Postdoctoral Researcher Award
"For contributing to LLNL's cosmochemistry program by establishing an international presence in cosmochemistry and broadening our understanding of solar system formation
- 2018 **Directorate Award**, *Physical and Life Sciences*, Lawrence Livermore National Laboratory
"For determining how and when the Martian crustal dichotomy, a topographic and geophysical divide between the heavily cratered southern highlands and smoother plains of the norther lowlands, formed – *Science Advances (2018)*"
- 2016 **Nathan Sugarman Award for Excellence in Graduate Research**
"For pioneering measurements of iron and nickel isotopes in presolar silicon carbide grains, which constrain models of stellar nucleosynthesis and galactic chemical evolution." – Andrew Davis. Enrico Fermi Institute, The University of Chicago, IL, USA.
- 2012–2015 **NASA Earth and Space Science Fellowship**
- 2011–2013 **Chicago Center for Cosmochemistry Fellowship**
- 2012 **Wiley Blackwell Award**
Received for "an outstanding oral presentation" at the Annual Meeting of the Meteoritical Society in Cairns, Australia.

Funding – \$2.37M total

- 2022–2025 **Planetary Data Archiving, Restoration, and Tools Program, National Aeronautics and Space Administration, (declined)**, \$191k, Preserving, correcting, maintaining, and further developing the Presolar Grain Database, Co-I
- 2020–2023 **Laboratory Directed Research and Development Program, Lawrence Livermore National Laboratory**, \$1.5M, Starry Messengers: Deciphering fingerprints of stellar nucleosynthesis through nuclear reaction rate measurements and isotopic analyses of stardust, Co-I (lead science PI)
- 2019–2020 **Laboratory Directed Research and Development Program, Lawrence Livermore National Laboratory**, \$531k, Proliferation of interstellar Pu into the Solar System, Lead PI
- 2019 **Laboratory Directed Research and Development Program, Lawrence Livermore National Laboratory**, \$149k, Establishing Hands-On Astrophysics at LLNL, Lead PI

Teaching Experience

- 2021 **Workshop**, *Brandeis University*, Department of Physics, An Introduction to Building Electronics Projects with Arduino
Workshop for graduate students to learn how to build experimental setups with Arduino Electronics. All course materials are available on GitHub.
- 2021 **Lecture**, *Brandeis University*, Department of Physics, On the Origin of Elements in the Milky Way
PHYS-112 class for undergraduate and graduate students, split between lectures to introduce topics of stellar nucleosynthesis and galactic chemical evolution followed by reading and discussion of research articles. All course material, including lecture notes, available on GitHub.
- 2019–2020 **Mentoring**, *Lawrence Livermore National Laboratory*, Nuclear and Chemical Sciences Division
Co-mentoring of one graduate student, Christopher J. Dory, Post College Apointee. Develop and pursue starudst measurement strategies: SEM/EDX mapping of sample mounts, NanoSIMS, and subsequent RIMS analyses of he same samples.
- 2017 **Mentoring**, *Lawrence Livermore National Laboratory*, Nuclear and Chemical Sciences Division
Co-mentoring of one graduate student (Dorothy Miller, NNSA Graduate Student Fellow, University of Tennessee) to measure U, Pu, and Th by RIMS.
- 2016 **Mentoring**, *The University of Chicago*, Department of the Geophysical Sciences
Co-mentoring of one undergraduate student (Olivia Pardo, now graduate student at Caltech) to apply RIMS to cosmochemistry measurements.
- 2010–2016 **Teaching assistant**, *The University of Chicago*, Department of the Geophysical Sciences
Science courses, among others: Physics of the Earth, Natural Sciences 101, Global Warming, Chemistry and the Atmosphere.
- 2008–2010 **Teaching assistant**, *University of Bern*, Physics Institute
Laboratory courses for non-science undergraduate students.

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2007–2008 **Teaching assistant**, *University of Bern*, Institute for Theoretical Physics
General mechanics course.

Invited Talks

- 2023 **Geneva Observatory, Versoix, Switzerland**, Stellar Evolution Group
“Hands-on astrophysics: Analyzing meteorites and presolar grains to decipher stellar nucleosynthesis”
- 2023 **Technical University Darmstadt, Darmstadt, Germany**, Department of Physics
“Presolar Grains: Hands-on Astrophysics”
- 2023 **18th Russbach School on Nuclear Astrophysics, Russbach, Austria**
Two invited lectures: “Presolar Grains”, “Nucleosynthetic Anomalies in the Solar System”
- 2023 **SIMS Winterschool, University of Lausanne, Lausanne, Switzerland**
“Resonance Ionization Mass Spectrometry”
- 2022 **Physical Research Laboratory, Ahmedabad, India**, Planetary Laboratory Analysis Section
“Hands-on Astrophysics: Analysis of Presolar Stardust Grains to Decipher Stellar Nucleosynthesis”
- 2021 **16th International Symposium on Nuclei in the Cosmos**, Chengdu, China
- 2020 **JINA Horizons**
“New Opportunities with Stardust”
- 2020 **Michigan State University, MI, USA**, JINA-CEE Seminar, Department of Physics and Astronomy
“Understanding stellar nucleosynthesis, its sites, and galactic chemical evolution by analyzing stardust grains”
- 2019 **University of Notre Dame, IN, USA**, Department of Physics
“Understanding the origin of our solar system and beyond by analyzing meteorites and stardust”
- 2019 **16th Russbach School on Nuclear Astrophysics, Russbach, Austria**
“Analyzing the witnesses of short-lived radionuclides in the Solar System”
- 2019 **University of California Davis, CA, USA**, Earth and Planetary Sciences
“Tracing the origin of the Solar System one isotope at a time”
- 2016 **Lawrence Livermore National Laboratory, CA, USA**, Nuclear and Chemical Sciences Division
“Iron and nickel isotopic abundances measured simultaneously in presolar silicon carbide grains with CHILI”
- 2016 **Washington University in St. Louis, MO, USA**, Laboratory for Space Sciences
“CHILI – A status update”
- 2013 **ETH Zürich, Zürich, Switzerland**, Department of Earth Sciences, Isochat
“Using Resonance Ionization Mass Spectrometry for Presolar Grain Analyses”
- 2012 **University of Victoria, BC, Canada**, Physics & Astronomy Department, StarTalk
“Stardust – Probing stellar nucleosynthesis and galactic chemical evolution”

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Professional Service

2019–present **Russbach School for Nuclear Astrophysics**, Scientific Advisory Committee

2021 **Origin of the Isotopes Workshop**, *Sponsored by the International Research Network for Nuclear Astrophysics (IReNA)*, Co-Organizer, <https://indico.frib.msu.edu/event/49/>

Manuscript reviewing, *The Astrophysical Journal*, *The Astrophysical Journal Letters*, *Geochimica et Cosmochimica Acta*, *Meteoritics & Planetary Sciences*, *Monthly Notices of the Royal Astronomical Society*, *Nature Astronomy*, *Revista Mexicana de Física*, *Treatise on Geochemistry*, *Science Advances*, *Spectrochimica Acta Part B: Atomic Spectroscopy*

Grant proposal reviewing, NASA (various programs)

Publications

A full publication list including conference abstracts can be found on Google Scholar.

<https://scholar.google.com/citations?user=nuqrAOUAAAAJ&hl=en>

Selected publications

Trappitsch R., Shulaker D.Z., Ong W.J., Savina M.R., and Isselhardt B.H. (2022) Resonance ionization of zirconium. *Journal of Radioanalytical and Nuclear Chemistry*, 331(12):5199–5204.

Trappitsch R., Savina M.R., and Isselhardt B.H. (2018) Resonance ionization of titanium: High useful yield and new autoionizing states. *Journal of Analytical Atomic Spectrometry*, 33:1962–1962.

Trappitsch R., Boehnke P., Stephan T., Telus M., Savina M.R., Pardo O., Davis A.M., Dauphas N., Pellin M.J., and Huss G.R. (2018) New constraints for the abundance of ^{60}Fe in the early solar system. *The Astrophysical Journal Letters*, 857:L15 (6pp).

Trappitsch R., Stephan T., Savina M.R., Davis A.M., Pellin M.J., Rost D., Gyngard F., Gallino R., Bisterzo S., Cristallo S., and Dauphas N. (2018) Simultaneous iron and nickel isotopic analyses of presolar silicon carbide grains. *Geochimica et Cosmochimica Acta*, 221:87–108.

Trappitsch R. and Leya I. (2016) Production and recoil loss of cosmogenic nuclides in presolar grains. *The Astrophysical Journal*, 823:12 (11pp).

Book chapters

Savina M.R. and **Trappitsch R.** (2021) Resonance Ionization Mass Spectrometry (RIMS): Fundamentals and Applications Including Secondary Neutral Mass Spectrometry. In R. Zimmermann and L. Hanley, editors, *Photoionization and Photo-Induced Processes in Mass Spectrometry*, chapter Resonance Ionization Mass Spectrometry (RIMS): Fundamentals and Applications Including Secondary Neutral Mass Spectrometry, pages 203–232. Wiley-VCH.

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Peer-reviewed articles

Stephan T. and **Trappitsch R.** (2023) Reliable uncertainties: Error correlation, rotated error bars, and linear regressions in three-isotope plots and beyond. *International Journal of Mass Spectrometry*, 491:117053.

Shulaker D.Z., **Trappitsch R.**, Savina M.R., and Isselhardt B. (2023) High-useful yield and new autoionizing state of resonantly ionized tungsten. *Journal of Analytical Atomic Spectrometry*, 38(2):457–463.

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Schatz H., Reyes A.D.B., Best A., Brown E.F., Chatziioannou K., Chipps K.A., Deibel C.M., Ezzeddine R., Galloway D.K., Hansen C.J., Herwig F., Ji A.P., Lugaro M., Meisel Z., Norman D., Read J.S., Roberts L.F., Spyrou A., Tews I., Timmes F.X., Travaglio C., Vassh N., Abia C., Adsley P., Agarwal S., Aliotta M., Aoki W., Arcones A., Aryan A., Bandyopadhyay A., Banu A., Bardayan D.W., Barnes J., Bauswein A., Beers T.C., Bishop J., Boztepe T., Côté B., Caplan M.E., Champagne A.E., Clark J.A., Couder M., Couture A., de Mink S.E., Debnath S., deBoer R.J., den Hartogh J., Denissenkov P., Dexheimer V., Dillmann I., Escher J.E., Famiano M.A., Farmer R., Fisher R., Fröhlich C., Frebel A., Fryer C., Fuller G., Ganguly A.K., Ghosh S., Gibson B.K., Gorda T., Gourgouliatos K.N., Graber V., Gupta M., Haxton W.C., Heger A., Hix W.R., Ho W.C.G., Holmbeck E.M., Hood A.A., Huth S., Imbriani G., Izzard R.G., Jain R., Jayatissa H., Johnston Z., Kajino T., Kankainen A., Kiss G.G., Kwiatkowski A., Cognata M.L., Laird A.M., Lamia L., Landry P., Laplace E., Launey K.D., Leahy D., Leckenby G., Lennarz A., Longfellow B., Lovell A.E., Lynch W.G., Lyons S.M., Maeda K., Masha E., Matei C., Merc J., Messer B., Montes F., Mukherjee A., Mumpower M.R., Neto D., Nevins B., Newton W.G., Nguyen L.Q., Nishikawa K., Nishimura N., Nunes F.M., O'Connor E., O'Shea B.W., Ong W.J., Pain S.D., Pajkos M.A., Pignatari M., Pizzone R.G., Placco V.M., Plewa T., Pritychenko B., Psaltis A., Puentes D., Qian Y.Z., Radice D., Rapagnani D., Rebeiro B.M., Reifarth R., Richard A.L., Rijal N., Roederer I.U., Rojo J.S., K J.S., Saito Y., Schwenk A., Sergi M.L., Sidhu R.S., Simon A., Sivarani T., Skúladóttir Á., Smith M.S., Spiridon A., Sprouse T.M., Starrfield S., Steiner A.W., Strieder F., Sultana I., Surman R., Szücs T., Tawfik A., Thielemann F., Trache L., **Trappitsch R.**, Tsang M.B., Tumino A., Upadhyayula S., Martínez J.O.V., der Swaelmen M.V., Vázquez C.V., Watts A., Wehmeyer B., Wiescher M., Wrede C., Yoon J., Zegers R.G.T., Zermane M.A., and Zingale M. (2022) Horizons: Nuclear astrophysics in the 2020s and beyond. *Journal of Physics G: Nuclear and Particle Physics*, 49(11):110502.

Savina M.R., Isselhardt B.H., and **Trappitsch R.** (2021) Simultaneous isotopic analysis of U, Pu, and Am in spent nuclear fuel by resonance ionization mass spectrometry. *Analytical Chemistry*, 93:9505–9512.

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Heck P.R., Greer J., Boesenberg J.S., Bouvier A., Caffee M.W., Cassata W.S., Corrigan C., Davis A.M., Davis D.W., Fries M., Hankey M., Jenniskens P., Schmitt-Kopplin P., Sheu S., **Trappitsch R.**, Velbel M., Weller B., Welten K., Yin Q.Z., Sanborn M.E., Ziegler K., Rowland D., Verosub K.L., Zhou Q., Liu Y., Tang G., Li Q., Li X., and Zajacz Z. (2020) The fall, recovery, classification, and initial characterization of the Hamburg, Michigan H4 chondrite. *Meteoritics & Planetary Science*, 55(11):2341–2359.

Füri E., Zimmermann L., Deloule E., and **Trappitsch R.** (2020) Cosmic ray effects on the isotope composition of hydrogen and noble gases in lunar samples: Insights from Apollo 12018. *Earth and Planetary Science Letters*, 550:116550.

Lugaro M., Cseh B., Világos B., Karakas A.I., Ventura P., Dell'Agli F., **Trappitsch R.**, Hampel M., D'Orazi V., Pereira C.B., Tagliente G., Szabó G.M., Pignatari M., Battino U., Tattersall A., Ek M., Schönbachler M., Hron J., and Nittler L.R. (2020) Origin of large meteoritic SiC stardust grains in metal-rich AGB stars. *The Astrophysical Journal*, 898(2):96.

Heck P.R., Greer J., Kööp L., **Trappitsch R.**, Gyngard F., Busemann H., Maden C., Ávila J.N., Davis A.M., and Wieler R. (2020) Lifetimes of interstellar dust from cosmic-ray exposure ages of presolar silicon carbide. *Proceedings of the National Academy of Science*, 117(4):1884–1889.

Battino U., Tattersall A., Lederer-Woods C., Herwig F., Denissenkov P., Hirschi R., **Trappitsch R.**, den Hartogh J.W., and M. P. (2019) NuGrid stellar data set - III. Updated low-mass AGB models and *s*-process nucleosynthesis with metallicities $Z=0.01$, $Z=0.02$ and $Z=0.03$. *Monthly Notices of the Royal Astronomical Society*, 489:1082–1098.

Liu N., Stephan T., Cristallo S., Gallino R., Boehnke P., Nittler L.R., Alexander C.M., Davis A.M., **Trappitsch R.**, Pellin M.J., et al. (2019) Presolar silicon carbide grains of types Y and Z: Their molybdenum isotopic compositions and stellar origins. *The Astrophysical Journal*, 881(1):28.

Trappitsch R. (2019) Mixed messages from a nova outburst. *Nature Astronomy*, 3:583–584.

Stephan T., **Trappitsch R.**, Hoppe P., Davis A.M., Pellin M.J., and Pardo O.S. (2019) Molybdenum isotopes in presolar silicon carbide grains: Details of *s*-process nucleosynthesis in parent stars and implications for *r*- and *p*-processes. *The Astrophysical Journal*, 877(2):101.

Jones S.W., Möller H., Fryer C.L., Fontes C.J., **Trappitsch R.**, Even W.P., Couture A., Mumpower M.R., and Safi-Harb S. (2019) ^{60}Fe in core-collapse supernovae and prospects for X-ray and gamma-ray detection in supernova remnants. *Monthly Notices of the Royal Astronomical Society*, 485(3):4287–4310.

Trappitsch R., Savina M.R., and Isselhardt B.H. (2018) Resonance ionization of titanium: High useful yield and new autoionizing states. *Journal of Analytical Atomic Spectrometry*, 33:1962–1962.

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Liu N., Gallino R., Cristallo S., Bisterzo S., Davis A.M., **Trappitsch R.**, and Nittler L.R. (2018) New constraints on the major neutron source in low-mass AGB stars. *The Astrophysical Journal*, 865(2):112.

Savina M.R., **Trappitsch R.**, Kucher A., and Isselhardt B.H. (2018) New resonance ionization mass spectrometry scheme for improved uranium analysis. *Analytical Chemistry*, 90(17):10551–10558.

Boehnke P., Bell E.A., Stephan T., **Trappitsch R.**, Brenhin Keller C., Pardo O.S., Davis A.M., Harrison T.M., and Pellin M.J. (2018) Potassic, high-silica Hadean crust. *Proceedings of the National Academy of Science*, 115:6353–6356.

Cassata, S. W., Cohen B.E., Mark D.F., **Trappitsch R.**, Crow C.A., Wimpenny J., Lee M.R., and Smith C.L. (2018) Chronology of Martian breccia NWA 7034 and implications for formation of the Martian crustal dichotomy. *Science Advances*, 4:eaap8306 (11pp).

Trappitsch R., Boehnke P., Stephan T., Telus M., Savina M.R., Pardo O., Davis A.M., Dauphas N., Pellin M.J., and Huss G.R. (2018) New constraints for the abundance of ^{60}Fe in the early solar system. *The Astrophysical Journal Letters*, 857:L15 (6pp).

Liu N., Stephan T., Boehnke P., Nittler L.R., Meyer B.S., Alexander C.M.O., Davis A.M., **Trappitsch R.**, and Pellin M.J. (2018) Common occurrence of explosive hydrogen burning in type II supernovae. *The Astrophysical Journal*, 885:144 (9pp).

Weisz D.G., Crowhurst J.C., Finko M.S., Rose T.P., Koroglu B., **Trappitsch R.**, Radousky H.B., Siekhaus W.J., Armstrong M.R., Isselhardt B.H., Azer M., and Curreli D. (2018) Effects of plume hydrodynamics and oxidation on the composition of a condensing laser-induced plasma. *The Journal of Physical Chemistry A*, 122(6):1584–1591.

Kodolányi J., Stephan T., **Trappitsch R.**, Hoppe P., Pignatari M., Davis A.M., and Pellin M.J. (2018) Iron and nickel isotope compositions of presolar silicon carbide grains from supernovae. *Geochimica et Cosmochimica Acta*, 221:127–143.

Pignatari M., Hoppe P., **Trappitsch R.**, Fryer C., Timmes F.X., Herwig F., and Hirschi R. (2018) The neutron capture process in the He shell in core-collapse supernovae: Presolar silicon carbide grains as a diagnostic tool for nuclear astrophysics. *Geochimica et Cosmochimica Acta*, 221:37–46.

Stephan T., **Trappitsch R.**, Davis A.M., Pellin M.J., Rost D., Savina M.R., Jadhav M., Kelly C.H., Gyngard F., Hoppe P., and Dauphas N. (2018) Strontium and barium

isotopes in presolar silicon carbide grains measured with CHILI—two types of X grains. *Geochimica et Cosmochimica Acta*, 221:109–126.

Trappitsch R., Stephan T., Savina M.R., Davis A.M., Pellin M.J., Rost D., Gyngard F., Gallino R., Bisterzo S., Cristallo S., and Dauphas N. (2018) Simultaneous iron and nickel isotopic analyses of presolar silicon carbide grains. *Geochimica et Cosmochimica Acta*, 221:87–108.

Liu N., Stephan T., Boehnke P., Nittler L.R., Alexander C.M.O., Wang J., Davis A.M., **Trappitsch R.**, and Pellin M. (2017) J-type carbon stars: A dominant source of ^{14}N -rich presolar SiC grains of type AB. *The Astrophysical Journal Letters*, 844:L12.

Savina M.R., Isselhardt B.H., Kucher A., **Trappitsch R.**, King B.V., Ruddie D., Gopal R., and Hutcheon I. (2017) High useful yield and isotopic analysis of uranium by resonance ionization mass spectrometry. *Analytical Chemistry*, 89(11):6224–6231.

Füri E., Deloule E., and **Trappitsch R.** (2017) The production rate of cosmogenic deuterium at the Moon's surface. *Earth and Planetary Science Letters*, 474:76–82.

Roth A.S.G., **Trappitsch R.**, Metzler K., Hofmann B.A., and Leya I. (2017) Neon produced by solar cosmic rays in ordinary chondrites. *Meteoritics & Planetary Science*, 52:1155–1172.

Cherniak D., Watson E., **Trappitsch R.**, Thomas J., and Chaussende D. (2016) Diffusion of helium in SiC and implications for retention of cosmogenic He. *Geochimica et Cosmochimica Acta*, 192:248–257.

Stephan T., **Trappitsch R.**, Davis A.M., Pellin M.J., Rost D., Savina M.R., Yokochi R., and Liu N. (2016) CHILI – the Chicago Instrument for Laser Ionization – a new tool for isotope measurements in cosmochemistry. *International Journal of Mass Spectrometry*, 407:1–15.

Battino U., Pignatari M., Ritter C., Herwig F., Denisenkov P., Den Hartogh J.W., **Trappitsch R.**, Hirschi R., Freytag B., Thielemann F., and Paxton B. (2016) Application of a theory and simulation-based convective boundary mixing model for AGB star evolution and nucleosynthesis. *The Astrophysical Journal*, 827:30.

Pignatari M., Herwig F., Hirschi R., Bennett M., Rockefeller G., Fryer C., Timmes F., Heger A., Jones S., Battino U., Ritter C., Dotter A., Trappitsch R., Diehl S., Frischknecht U., Hungerford A., Magkotsios G., Travaglio C., and Young P. (2016) NuGrid stellar data set. I. Stellar yields from H to Bi for stars with metallicities $Z=0.02$ and $Z=0.01$. *The Astrophysical Journal Supplement*, 225:24 (54pp).

Trappitsch R. and Leya I. (2016) Production and recoil loss of cosmogenic nuclides in presolar grains. *The Astrophysical Journal*, 823:12 (11pp).

Wieler R., Huber L., Busemann H., Seiler S., Leya I., Maden C., Masarik J., Meier M.M.M., Nagao K., **Trappitsch R.**, and Irving A.J. (2016) Noble gases in 18 Martian

meteorites and angrite Northwest Africa 7812 – Exposure ages, trapped gases, and a re-evaluation of the evidence for solar cosmic ray-produced neon in shergottites and other achondrites. *Meteoritics & Planetary Science*, 51:407–428.

Pignatari M., Zinner E., Hoppe P., Jordan C.J., Gibson B.K., **Trappitsch R.**, Herwig F., Fryer C., Hirschi R., and Timmes F.X. (2015) Carbon-rich presolar grains from massive stars: Subsolar $^{12}\text{C}/^{13}\text{C}$ and $^{14}\text{N}/^{15}\text{N}$ ratios and the mystery of ^{15}N . *The Astrophysical Journal Letters*, 808:L43.

Trappitsch R. and Ciesla F.J. (2015) Solar cosmic-ray interaction with protoplanetary disks: Production of short-lived radionuclides and amorphization of crystalline material. *The Astrophysical Journal*, 805:5 (11pp).

Meier M.M.M., Schmitz B., Alwmark C., **Trappitsch R.**, Maden C., and Wieler R. (2014) He and Ne in individual chromite grains from the regolith breccia Ghubara (L5): Exploring the history of the L chondrite parent body regolith. *Meteoritics & Planetary Science*, 49:576–594.

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